The results of this study suggest that *P. berghei* infection is of a synchronous nature and can be completely fatal to experimental animals.

Malarial infection causes various structural and functional alterations in different organs of host viz. liver, spleen and kidney. Our results conclude that hepatotoxicity assumes special significance in experimental infection of rodents. The above findings is supported by the fact that liver acts as the primary organ for host's homeostasis, and as such various chemical constituents and enzymes of liver including, total lipid, phospholipid, cholesterol, lipid peroxidation, protein, DNA, RNA, liver transaminases and liver phosphatases are invariably altered, significantly. Histochemical studies were also helpful in confirming that massive biochemical changes take place during malarial infection. Similarly, due to liver dysfunction, changes were also observed in serum transaminase and serum phosphatase contents.

Immunization studies were helpful in checking the degree of protection in animals against the infection. Several methods were used for the isolation of *P. berghei* antigen in pure form. These results are largely based on the various methods which were employed for obtaining antigen preparations in this laboratory. During these investigations, we found that histopaque density gradient centrifugation procedure can be
usefully employed for obtaining comparatively pure antigen preparation. Similarly, sodium do-decyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) method was found useful for characterization of *P. berghei* antigen. The antigen extracts thus obtained were found immunologically active. Successful immunization of albino mice against *P. berghei* antigen and TDM was carried out. The inoculation of *P. berghei* antigen alone was capable of generating only a weak humoral and cellular response in immunized animals. Our results indicate that *P. berghei* antigen must be used in combination with a potent adjuvant for obtaining better results. The animals immunized with Ag-TDM combination showed good humoral and cellular immune responses following challenge with, *P. berghei* parasites, showing 100 percent protection. In our investigations, injection of TDM alone also showed 100 percent protection. Therefore TDM also provides non-specific resistance to the host as evident from our observations.

The most striking feature in our study was that at high parasitaemia, contents of serum phosphatase and serum transaminase were altered due to liver dysfunction. But in immunized animals these values were near normal. These results further indicate a good correlation between host's resistance to infection and the availability of these enzymes.
The malarial infection adversely affected the host's vital organs such as liver, spleen and kidney. Pathological lesions in the mouse liver infected with *P. berghei* were identical to those observed in primates, human malaria due to *P. knowlesi* and *P. falciparum* infection. Whereas histopathological studies in immunized, protected animals showed normal tissue architecture, free from pigment deposition.

In brief, the various experiments performed during this work showed that infected animals showed massive biochemical alterations in tissue and serum. Similar tissue alteration were also observed in histopathological examination of the infected liver. Such alterations were not seen when similar examination were carried out in immunized animals.

It can be concluded from the results of various experiments that immunization studies might be helpful in minimizing the pathophysiological changes in animals infected with *P. berghei*. 